Chapter 2 – ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the alternatives considered to achieve the purpose and need described in **Chapter 1**. The National Environmental Policy Act (NEPA) regulations require federal agencies to "identify and assess the reasonable alternatives to proposed actions that would avoid or minimize adverse effects of these actions upon the quality of the human environment" (40 CFR 1500.2(e)). This chapter includes alternative development (including public involvement), features common to all alternatives (including monitoring and mitigation), and a comparison of the alternatives and their effects.

2.2 SCOPING AND ALTERNATIVE DEVELOPMENT

2.2.1 Scoping

The first step in environmental analysis is to determine what must be analyzed, for which NEPA outlines a process termed "scoping" (40 CFR 1501.7). This is an open process designed to identify the potential issues associated with a proposed action and those issues that are significant to the decision. Issues are also identified that are not significant or that have been covered by prior environmental review and are therefore eliminated from further detailed analysis.

The public was first notified of this project in the "Quarterly Schedule of Proposed Actions" for the Colville National Forest (CNF), beginning in the fall of 1999 (Vol. 8, No. 1). Scoping activities also included a legal notice in the local newspapers, a Notice of Intent to prepare an environmental impact statement published in the Federal Register (April 21, 2000). The Colville National Forest notified adjacent landowners and other potentially interested parties in a letter sent to 140 individuals, organizations, agencies and media outlets (February 12, 2002). 49 Degrees North mailed the same notice to ski area season pass holders. Public comments were accepted beyond the 30-day scoping period and are available for review in the project file.

A Draft Environmental Impact Statement (DEIS) was circulated in May 2003. A Notice of Availability appeared in the Federal Register May 16, 2003, beginning a 45 day comment period. The comment period ended June 30, 2003. During that period, an article about the proposal appeared in the Spokane Washington newspaper The Spokesman-Review. Twelve comments were received. These comments are addressed in Appendix B.

2.2.1.1 Tribal Consultation

In 2000, then District Ranger Dan Dallas notified the Kalispel Tribe of Indians Natural Resources Dept. that Chewelah Basin Ski Corp. was preparing a revised Master Plan. Chewelah Basin Ski Corp. provided the Tribe a copy of their proposed revised Master Plan in June, 2000. The Tribe was notified by letter that the Forest Service was preparing an EIS in February 2002. They responded to that letter stating they would "render comments either during the current comment period or during the DEIS period." The Tribe received a copy of the

DEIS in May 2002. They have worked with the Forest Archeologist and Chewelah Basin Ski Corp. to resolve their concerns regarding continued access to the area.

2.2.2 Issues

Responses to the Scoping Notice were received from 76 individuals, agencies and groups. Comments were received in the form of letters, electronic mail messages, phone calls and personal visits. The most common comment was support for ski area expansion. Of the 76 comments received, 62 (82%) expressed support for ski area expansion and one expressed opposition. Those not expressing support or opposition identified issues of interest to be considered in the EIS process. These issues included riparian areas, cumulative impacts, habitat fragmentation, alternative development, wildlife, Threatened, Endangered and Sensitive species, Canada lynx, fish, roadless areas, wilderness, housing density, watersheds, water quality, streams, soil quality, traffic, cultural and historic resources, public participation and biodiversity.

The interdisciplinary team used the comments received during scoping to identify conflicts, develop issues and design alternatives. A list of preliminary issues was developed and evaluated for significance. Not all issues become *Key Issues*. NEPA determines significance by considering the context and intensity of the issue. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human and national), the affected region, the affected interests and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity of impact.

Three key issues were identified.

2.2.2.1 Key Issue: Recreation

Recreation is one of the multiple uses provided by National Forest System lands. Population and other factors have contributed to increased demand on recreational resources including alpine skiing and snowboarding. Significant increases in use rates have occurred at 49 Degrees North and these increases are projected to continue. Other winter recreation interests at 49 Degrees North include Nordic skiing, snowmobiling and snowshoeing. Summer recreation interests include hiking, mountain biking and horseback riding. Most scoping comments suggested the need for expansion to meet existing and future needs. Information about recreation is presented in **Chapter 3 –** Recreation. Effects on recreation are addressed in **Chapter 3 –** Recreation and in **Chapter 2 –** Comparison of Alternatives.

Unresolved conflicts exist between the need for additional recreation facilities and the desire to protect other resources, especially wildlife, water quality and fisheries. Ski runs and other facilities cannot be constructed without removing trees, grading slopes, installing culverts, etc. – potentially creating impacts to Riparian Habitat Conservation Areas (RHCAs) and wildlife.

Measurable indicators: The following measurements of change will be used to evaluate and compare the effects of the alternatives on recreation.

Table 2-1: Measurements of Change for the Recreation Issue

Recreation Concern	*Measurement of Change*
Long lift lines	Number of lifts and uphill capacity.
Crowding on ski slopes	Acreage of ski runs and tree skiing.
Other recreation amenities offered	Miles of Nordic trails and development of the ice rink.
Crowding in Main Lodge	Main Lodge area (square feet) and capacity.
Crowding in parking areas	Capacity of parking areas (vehicles).

2.2.2.2 Key Issue: Wildlife

Wildlife habitat is another of the multiple uses provided by NFS lands. Scoping comments included concerns for wildlife, wildlife habitat fragmentation, Threatened, Endangered and Sensitive species (TES species), biodiversity and wildlife corridors. Comments also addressed old-growth and the species that depend on old-growth for habitat. A variety of past land management activities have affected wildlife resources in this area. Information about wildlife is presented in **Chapter 3 –** Wildlife. Effects on wildlife are addressed in **Chapter 3 –** Wildlife and in **Chapter 2 –** Comparison of Alternatives.

Unresolved conflicts exist between wildlife habitat and the need for additional recreation facilities. New recreation opportunities cannot be created without tree removal for ski runs, tree skiing and other facilities. Some of this tree removal is within existing old growth forest and lynx habitat.

Measurable Indicators: The following measurements of change will be used to evaluate and compare the effects of the alternatives on wildlife.

Table 2-2: Measurements for Change for the Wildlife Issue

Concern	*Measurement of Change*
Wildlife habitat changes	Acreage of forest cleared for new ski runs and lifts. Acreage of forest thinned for tree skiing.
Wildlife habitat changes to Old Growth Dependent Species	Acreage of old-growth forest cleared for new ski runs. Acreage of old-growth forest thinned for tree skiing.
Lynx Habitat	Acreage and percent of lynx habitat components in Lynx Analysis Unit (LAU)

2.2.2.3 Key Issue: Water and Fish

Water resources and fish habitat are also multiple uses provided by NFS lands. Scoping comments included concerns for watersheds, water quality, riparian habitat, streams and fisheries. Information about watersheds, water quality, riparian habitat, and streams is presented in **Chapter 3 –** Water Resources. Effects on Water Resources are addressed in **Chapter 3 –** Water Resources and in **Chapter 2 –** Comparison of Alternatives. Information about fisheries is presented in **Chapter 3 –** Fisheries. Effects on fisheries are addressed in **Chapter 3 –** Fisheries and in **Chapter 2 –** Comparison of Alternatives.

Unresolved conflicts exist between the water/fish resources and the need for additional recreation facilities. New recreation opportunities cannot be created without tree removal for ski runs, tree skiing and facilities. New recreation opportunities also cannot be created without grading and culvert installations for stream crossings. All culverts, as well as some proposed tree removal and grading, are within Riparian Habitat Conservation Areas.

Measurable indicators: The following measurements of change will be used to evaluate and compare the effects of the alternatives on water resources.

Table 2-3: Measurements of Change for the Water and Fish Issue

Concern	*Measurement of Change*
Water quality	Number of new culverts installed and existing culverts replaced.
Wetlands	Acreage of wetlands affected.
Water Quality and Fish Habitat	Acreage of new impacts within Riparian Habitat Conservation Areas (RHCA). Existing impacts within RHCAs removed. Acreage of RHCA reclaimed.

2.2.2.4 Other Measurements of Change

In addition to the resources associated with the Key Issues, the effects the alternatives have on a variety of other resources are discussed. These resources are managed under the CNF Forest Plan Standards and Guidelines (USDA Forest Service 1988a). The effects the alternatives have on these resources are described in detail in **Chapter 3**. Resources described include soils and geology, air quality, vegetation, range, social and economic effects, heritage sites, and scenery.

2.2.3 Alternative Development and Modification

The Master Development Plan submitted by 49 Degrees North is the proposed action and is analyzed in this FEIS as Alternative B. The National Environmental Policy Act gives the interdisciplinary team the responsibility of providing the decision maker with alternatives to the proposed action, when unresolved conflict exists. The Act notes that all reasonable alternatives should be considered. As established in case law interpreting the National Environmental Policy Act, the phrase "all reasonable alternatives" has not been interpreted to require that an infinite or unreasonable number of alternatives be analyzed, but does require a range of reasonable alternatives be analyzed whether or not they are within Forest Service jurisdiction to implement.

As noted above, public comment generated three Key Issues involving unresolved conflict: *Recreation*; *Wildlife* and *Water Resources/Fisheries*. To provide a reasonable range of effects in the context of these three issues, the team considered the features of the proposed action that sparked public comment. These include the opportunity for additional recreation opportunities, the preservation of wildlife habitats, especially habitats for TES species, and the protection of water and fisheries resources.

Several potential issues were dismissed that are not related to the proposed action. There are no Wilderness Areas, Roadless Areas, Research Natural Areas, or Wild and Scenic Rivers that would be affected by the proposed action, and so these issues are not analyzed further.

2.2.4 Other Alternatives Considered

As noted above, the interdisciplinary team has the responsibility of providing the decision maker with a reasonable range of alternatives. En route to that end, they considered several suggestions that were dismissed for a variety of reasons. This section describes other proposals and the reasons they were dismissed from further analysis.

2.2.4.1 Reduce Housing Density on Adjacent Private Lands

The proposed housing development on adjacent private land is considered in this EIS as an action that is reasonably foreseeable. Chewelah Basin Ski Corporation has indicated a desire to develop their lands in Section 7. However, at this point the plans are still in an early development phase. When they are developed, these plans must go through separate local and State review by health and planning authorities. The suggestion that the proposed housing density is too great on adjacent private lands would be more appropriately analyzed by these State and local authorities. The ski area expansion could take place without the proposed housing development on adjacent private land.

2.2.4.2 Eliminate New Cross-County Ski Trails and Ice Rink

Suggestions that the Nordic ski trails and the ice rink be eliminated may not meet the purpose and need of the project since these components provide a more diverse recreational opportunity. Visitors expect a range of recreation opportunities during winter periods. These project components would allow 49 Degrees North to serve families with diverse recreational interests at one location. The Nordic ski trails would also be used for summer recreation including hiking, mountain biking and horseback riding. This summer use would provide resort income during periods that have had little use in the past.

The proposed ice rink is not a key component of the proposed action and is not essential to the economic success of 49 Degrees North. However, an ice rink would add another recreational component that is commonly available at ski areas and would do so with very little impact on resources. This additional recreational opportunity would add to the diversity and economic stability of 49 Degrees North. Potential effects from both the Nordic ski trails and the ice rink are therefore analyzed in this EIS.

2.2.4.3 No Additional Ski Terrain

The Environmental Protection Agency, in their comments on the DEIS, inquired why an alternative was not developed that would increase the parking, lift, lodge, water system and waste-water systems, but would not increase the amount of ski terrain. **Table 2-4** suggests that the current ski terrain would be in balance with a proposal that increases the lodge, increases the parking[1], increases the lift capacity, and increases the water and waste-water treatment facilities – bringing the balance at about 3,000 people at one time. A copy of the EPA letter is located in Appendix B.

The Forest Service reconsidered whether this alternative should be considered, and decided that it should not. An alternative that does not increase and improve the ski terrain does not meet the proponents purpose and need for the project, i.e., the need for additional ski terrain to respond to increased demand, to enhance the skiing experience, and to compete effectively in the local ski market. Improvements to the support facilities without some improvements on the slopes are unlikely to continue to draw skiers to this area.

[1] The numbers regarding parking acreages and capacity were incorrect in the DEIS and have been revised in the FEIS. Prior to the Flowery Trail Road reconstruction the parking area was about 6 acres with a Comfortable Carrying Capacity (CCC) of about 1,570 people. With reconstruction of the Flowery Trail Road, the parking areas were expanded to about 11 acres with a CCC of about 2,700 people. Alternatives B and C increase this parking slightly to about 15 acres with a CCC of about 3,900 people – close to the CCC for the lodge and lifts. The CCC for the terrain remains higher than for the other features (see **Table 2-4**).

In order to survive, small resorts such as 49 Degrees North need to successfully fill a niche in the industry market. 49 Degrees North Mountain Resort has a history of providing skiing on relatively uncrowded slopes. The Comfortable Carrying Capacity (CCC) for terrain is calculated based on ski industry average figures. This resort has always maintained a low ratio of skiers/acre – below this industry-wide average. Increasing the numbers of skiers per acre would not serve this resort well.

The purpose for new terrain was reviewed. The need for the new terrain proposed is outlined in **Chapter 1 -- Section 1.2**. Three areas of new terrain are identified – the East Basin, the West Basin and Lower Silver Ridge. The need for new terrain in each area was considered separately.

The terrain in the Lower Silver Ridge area is proposed to improve traffic flow and safety in an area where existing runs merge. These runs would also improve skier egress at the end of the day. The gladed skiing also increase the total amount of intermediate terrain, one of the components the ski area is lacking. This terrain clearly respond to the purpose and need, therefore an alternative that dropped this terrain was not considered in detail.

The additional terrain in the East Basin is proposed to serve the new East Basin lift, which is needed to improve the Comfortable Carrying Capacity balance of the resort. This terrain is necessary to return skiers to the base. Terrain in this area has the greatest potential to adversely affect old growth dependent wildlife species. That is why two alternatives were designed in this area. An alternative that does not develop additional ski terrain in this area is not feasible.

The additional terrain in the West Basin is proposed to balance the use across the resort, and to increase the amount of advanced and intermediate terrain. This terrain includes a mix of cleared runs and gladed skiing. The main cleared run would require installation of two culverts on intermittent portions of Tenmile Creek; adverse effects associated with this terrain is from the installation of these culverts (see **Chapter 3 – Sections 3.2.2, 3.2.4, and 3.3.2**). With mitigation, this effect is expected to be minimal. Therefore, an alternative that dropped this terrain was not considered.

2.3 ALTERNATIVES CONSIDERED IN DETAIL

The alternatives considered in detail include the No Action Alternative (Alternative A) and the Action Alternatives (Alternatives B and C) that would allow expansion of 49 Degrees North. Each alternative is described below and the principle components are compared in **Table 2-5.**

Under all three alternatives (A, B and C), regular maintenance and upkeep activities would occur which are permitted under the current Master Development Plan. These activities include things like:

- Mowing, weeding, removal of trees invading cleared runs, removal of hazard trees, and other vegetation management activities within the permit area.
- Continued monitoring and treatment of weed infestations. This treatment is included in the Colville National Forest Environmental Assessment of Integrated Noxious Weed Treatment (1998).
- Maintenance of the roads used by the Resort within the permit area.

- Maintenance and replacement of buildings and facilities, as needed.

2.3.1 Comfortable Carrying Capacity for All Alternatives

Comfortable Carrying Capacity (CCC) is the maximum number of skiers that can be accommodated while providing both a pleasant recreational experience and a high-quality environment (Eminger 2002c). Comfortable Carrying Capacity is considered balanced when resort amenities (lifts, terrain, lodges, parking areas, utilities) can each serve about the same number of skiers. Of the CCC, 70 to 85 percent (depending on weather and snow conditions) will be active skiers, while the remaining visitors will be using the skier support facilities and amenities. At a balanced ski area, the active skiers will be evenly distributed throughout the mountain facilities whether on the ski slopes, waiting in the lift lines, or riding the ski lifts. Additional recreational uses such as Nordic skiing, ice skating, hiking, bike riding, wildlife viewing and interpretive programs, are considered in determining the CCC of parking, utilities, lodges and other features. **Table 2-4** displays the CCC for all the alternatives. The CCC values for Alternative A are poorly balanced/significantly lower for lodge and ski lifts than what the ski terrain would support. Alternatives B and C both increase total CCC and improve the balance in CCC between facilities.

Table 2-4: Comparison of Comfortable Carrying Capacity by Alternative

Resort Element	Alternative A	Alternative B	Alternative C
Ski Terrain	3,300	5,500	5,100
Ski lifts	2,000	4,000	4,000
Lodge	1,800	4,000	4,000
Parking	2,700	3,900	3,900
Water	2,700	5,000	5,000
Wastewater Treatment	2,000	5,000	5,000

2.3.2 Features Common to Both Action Alternatives

Alternatives B and C are the action alternatives. Both alternatives would expand the resort to include about 2,000 acres of NFS lands, to include the entire area designated for downhill skiing in the 1988 Forest Plan. Both action alternatives include the following proposals. Alternatives B and C are identical in many ways; actions that differ between the alternatives are **highlighted**.

2.3.2.1 Ski Lifts

Both alternatives B and C propose to construct a new ski lift in the East Basin (Nelson Creek area). The location of this lift is the same in both alternatives. This lift would be approximately 5,000 feet long with about 37 towers and 2 terminals. Approximately 70% of this chairlift, including the upper terminal, would be located on NFS lands. Approximately 30% of this chairlift including the lower terminal would be located on adjacent private land in Section 7 (**Figure 2-1**). The resort's lift capacity would increase from about 2,000 to about 4,000 skiers per hour.

It is likely that some of the existing lifts would need to be replaced during the life of this Master Development Plan. It is possible that existing lifts would be replaced with higher capacity lifts, because the existing type of lifts are no longer made. The total lift capacity of the resort would not exceed the CCC for the terrain.

2.3.2.2 Ski Terrain

Both alternatives propose to construct new ski terrain. Both alternatives include a mix of cleared runs and gladed terrain. There are three areas where new terrain is proposed – the Upper East Basin, the Lower Silver Ridge, and the West Basin (see **Figure 2-1)**.

Both alternatives include grading on some runs. The amount and location of these graded runs does not differ between the alternatives. They are shown in **Figures 2-1** and **2-2**.

The proposed ski terrain in the Lower Silver Ridge and the West Basin are the same in both alternatives. The new ski terrain in the Lower Silver Ridge is proposed to improve traffic flow, safety, and egress at the bottom of the Silver King, Silver Queen and Silver Jack runs. The new terrain in the West Basin is proposed to increase the terrain served by existing lifts.

The new ski terrain in the Upper East Basin is proposed as an integral part of the proposed East Basin Lift. This terrain includes both cleared runs and gladed terrain. **The alternatives differ with regard to the ski terrain developed in the Upper East Basin – the location and the type. Alternative B has more cleared runs and develops more areas of ski terrain in this area. Alternative C has more gladed runs, and develops slightly less terrain. Alternative C was developed to reduce the impact of ski terrain on old growth forests in the Upper East Basin.**

2.3.2.3 Support Facilities

Main Lodge Area
Both alternatives would expand the Main Lodge and its facilities including food service, skier services, ticket office and plaza area. The alternatives do not vary in the proposed changes (see **Figure 2.3 and 2.4**). The post and beam nature of the existing structure would be maintained. This provides the flexibility to expand the existing Main Lodge in 6,000 sq. ft. increments as skier visits increase. The maximum of 36,000 sq. ft. would be achieved over a seven-year period. All skier service facilities in the base area would be located within a short distance of lift terminals. The buildings are arranged in such a way as to create an Arrival Plaza and a Skier Plaza.

The Arrival Plaza would face the vehicular drop-off area. Access to rental shop entrance, lift ticket and ski school sales offices, skier services office (information, lost and found, etc.), first aid room and the Main Lodge would be from this plaza.

The Skier Plaza would be oriented towards the southwest, ensuring that the solar exposure for outdoor food and beverage service is provided. The Skier Plaza would be oriented towards the skiing to help to create a lively atmosphere.

The Main Lodge and other construction activities would require an NPDES storm water discharge plan and permit administered by the Washington Department of Ecology.

Mid-Mountain Lodge in the Nelson Creek Drainage (East Basin)
Both action alternatives include a Mid-Mountain Lodge, with power and water, on private land in the Nelson Creek Drainage (see **Figures 2-1** and **2-2**). This facility would relieve pressure on the base lodge and effectively serve the new East Basin Lift. This lodge would provide lift-serviced dining for alpine skiers in winter. During the summer months, the 3,600 square-foot Mid-Mountain Lodge would offer interpretive programs, views and other opportunities to enjoy

the surrounding natural beauty. This lodge would be designed to blend with the natural landscape as a "legacy project" for the owner. Water would be supplied from the existing base area via a buried pipe. Electrical service would be supplied with a buried line from the summit. An on-site wastewater treatment system (drain field) would be used to service the Mid-Mountain Lodge. The Mid-Mountain Lodge, like other buildings, would require an NPDES storm water discharge plan and permit administered by the Washington Department of Ecology.

Maintenance Building/Ski Patrol Conversion
Alternatives B and C would construct a new maintenance shop at the west end of the main parking lot. This building would be located outside the stream buffer (RHCA) of Tenmile Creek. The existing maintenance building would be converted for use by the Ski Patrol. See **Figures 2-3 and 2-4**.

Fuel Station
This is the gasoline storage and dispensing facility for the resort's vehicles. Currently the facility is located next to Little Calispell Creek – posing a risk of a fuel spill into the creek. Both alternatives would construct a new fueling station adjacent to the new maintenance building. This fuel station would be located outside the stream buffer (RHCA) of Tenmile Creek. The existing location of the fuel station is shown in **Figure 1-3**.

Roads
The Flowery Trail Road is being reconstructed. This reconstruction includes a new entrance for the Resort, and a new alignment for the road from the main parking area to the Main Lodge. This new road and alignment are being constructed, and would occur under all alternatives. The new alignment adjacent to the ski area is illustrated on **Figures 2-3** and **2-4**.

Under both Alternatives B and C, the Forest Service would offer to transfer jurisdiction of one mile of Forest Road 4300474 to Stevens County (this road is shown in **Figure 1-2**). This road segment begins at Flowery Trail Road and extends south to the private land in Section 7. Stevens County is not obligated to accept jurisdiction for this road, and may require road improvements as a condition of acceptance. This decision does not obligate the Forest Service to improve the road so that Stevens County would accept jurisdiction. If improvements were required, Best Management Practices and other mitigation similar to those listed in **Section 2.3.8** would be required.

Parking
The parking area was about 6 acres. The Flowery Trail reconstruction project added about 5 acres of new parking during the summer of 2003. Both action alternatives would add an additional 4 acres of new parking (**Figure 2-3** and **2-4**).

The existing 12 RV sites that have electrical hook-ups (and no dump station) would be augmented with 16 additional electrical hook-ups.

Water Supply
Alternatives B and C would add a 50,000 to 70,000 gallon storage tank between Tenmile Creek and Little Calispell Creek. Both action alternatives would also install 15,000 feet of underground pipeline to connect the new tank and an existing well in Section 7 to the existing water system, the Nordic Center/ice rink and the Mid-Mountain Lodge. These pipelines are shown in **Figures 2-1** and **2.2**. Installation of underground utilities is described in more detail in **Section 2.3.3.5**.

Two permanent pipes were installed across Little Calispell Creek as part of the Flowery Trail Road reconstruction project. These pipes provide access for future water and sewer lines without further disturbance to the creek.

Both action alternatives would move the water system chlorinator from it's current location adjacent to Little Calispell Creek into the Main Lodge.

Wastewater Treatment Systems
Both alternatives B and C would construct a new wastewater treatment system for the Main Lodge. The proposed treatment area is located near the existing treatment facility (**Figure 2-3** and **2-4**). The existing and proposed treatment systems would cover approximately 4 acres. Initial consultation and engineering analysis indicated the soil and site are suitable for several different treatment options; and the area is large enough to support a treatment facility with the capacity of about 5,000 visitors per day. Treatment methodologies being considered include a closed system with an aeration or clarified package, mechanical pretreatment and Recirculating Gravel Filters. The final decision on the wastewater treatment facility would require additional analysis and consultation. The treatment facility would be designed and managed in accordance with all Federal, State and local requirements.

The Washington State Department of Ecology requires the identification of alternate or potential future sites for wastewater treatment. A potential future site is shown in **Figures 2-3** and **2-4**. No facilities are proposed for these sites at this time.

In both action alternatives, waste disposal at the Mid-Mountain Lodge and Nordic Center would utilize septic tank/drainfield systems. Review of these sites has determined that they meet requirements for septic tank/drainfield systems (Johnson 2002).

Energy Supply
Both action alternatives would supply electrical power to the new Mid-Mountain Lodge and East Basin Lift (Nelson Creek Drainage) with 11,000 feet of underground electrical cable. Existing power lines to the ski area are sufficient to handle the increased load and no new lines are needed beyond the 11,000 feet of underground cable required to distribute power to new lifts and lodges. The location of this line is shown in **Figures 2-1** and **2-2**. Installation of underground utilities is described in more detail in **Section 2.3.3.5.** This electrical supply could also be used to support other developments on private land in Section 7.

2.3.2.4 Other Recreation Facilities

Nordic Trails, Nordic Center, and Ice Rink
Both action alternatives would construct an Ice Rink, Nordic Center and Nordic trails. The Nordic Center would provide food service, restrooms and lockers for both Nordic skiers and skaters. The ice rink could be used as a small tent camping area in the summer. The location of this center is shown in **Figures 2-3** and **2-4**. Under both action alternatives, about 2 miles of the existing Chewelah Mountain Nordic trail, located on Forest Road 4300474, would convert to a county access road and would no longer be available for Nordic skiing. The proposed Nordic trail would reconnect to this existing trail in Section 8.

The alternatives differ with regard to the amount of Nordic trails and their locations in the area south of the proposed Nordic Center (Section 6, 7 and 8). Alternative B creates more Nordic trails in this area; Alternative C creates fewer. Alternative C was developed

to reduce the number of culverts that would need to be installed on Nordic trails, to reduce impacts to wildlife, and to provide a better ski experience[2].

Flowery Trail Community Trail
Both Alternatives B and C would allow winter Nordic skiing and snowmobiling, as well as summer hiking, biking and horseback riding on an existing primitive road from the base area to the Flowery Trail Community subdivision. This road also passes near the Chewelah Peak Learning Center. This road is shown in **Figure 2-1** and **2-2**. A culvert or bridge would be installed on Tenmile Creek for this trail.

Summer Trail System Use
Both action alternatives would allow summer use on the Nordic trails including hiking, mountain biking and horseback riding. Nordic trails would be used for periodic vehicle access for maintenance during snow-free periods.

2.3.2.5 Reclamation in Little Calispell Creek RHCA

Both alternatives would remove the most noxious potential threats to water quality in Little Calispell Creek – vehicle maintenance, fueling and the chlorinator.

Both action alternatives would move the maintenance shop functions to a new shop located at the west side of the main parking area. The building would remain for the Ski Patrol. Removing the maintenance function would reduce the potential for petrochemicals or other chemicals associated with vehicle maintenance from entering the nearby stream. Ski Patrol functions would provide little risk of water pollution. The fuel station would also be removed to the new maintenance shop area, reducing the risk of a spill into the stream. The chlorinator would be moved into the Main Lodge, also reducing the risk of a spill into the stream. These changes would reduce the potential for sediment and chemicals from reaching Little Calispell Creek.

The alternatives differ with regard to the other buildings within Little Calispell Creek's RHCA, and reclamation of riparian vegetation near the lodge. Alternative B removes the facilities that are most likely to damage water quality. Alternative C was developed to more completely restore riparian vegetation along Little Calispell Creek.

2.3.3 Construction Techniques Common to All Alternatives

This section describes construction and management techniques that would be used to implement the Action Alternatives. The choice of techniques and the area/location of their application vary by Action Alternative as explained below.

2.3.3.1 Clearing for Ski Runs and Ski Lifts

Ski runs and lift corridors would be constructed by removing all trees and tall shrubs. Most soil would remain covered by low shrubs, grasses, forbs and the forest litter layer of needles and other plant remains. Stumps would be cut as close to ground level as possible. Where stumps cannot be cut low enough, they would be treated either by re-cutting, by breaking down with harvest equipment or by removal by harvest equipment. Stump removal would occur only at

[2] In alternative B, the Nordic trail is quite steep as it climbs the ridge in Section 8. In Alternative C the trail is not as steep.

small, disconnected sites. Non-commercial wood waste would be chipped and used for erosion control as needed on steeper slopes. In other areas, wood waste would be piled and burned according to Forest Service standards and State air quality controls.

Timber harvest would be conducted using wheeled and tracked equipment (including forwarders) on the gentler slopes and cable machines or helicopters on the steeper slopes. Small, discontinuous areas of bare soil would be exposed during this process and these sites would be seeded to accelerate vegetation recovery following clearing. Clearing for ski runs would only occur in stream buffers (RHCAs) where there is no alternative and all ski runs would be oriented at right angles to streams to minimize the area of effects. Clearing for ski runs cannot be completely avoided in stream buffers since ski runs must go downhill and inevitably traverse streams at some point. The number of stream crossings has been kept to a minimum.

Merchantable timber removed during this project would be sold. The marketing mechanism would be determined at the time of project implementation. The Forest Service would determine the trees to be removed, the yarding system to be used, the slash disposal methods and all mitigation to reduce soil erosion and other potential impacts.

2.3.3.2 Thinning (Glading) for Improved Tree Skiing

This thinning would concentrate on removing smaller trees (<17 inches in diameter) and large shrubs to improve skiing quality and reduce safety hazards. In some areas, larger trees would also be removed. Standing snags (large dead trees) would be left unless determined to be a safety hazard. Woody debris would be left on approximately 50 percent of the area. Harvest and fuel reduction techniques would be similar to those described in **Section 2.3.3.1**. Little soil disturbance would occur and re-seeding would be used only if native plants did not immediately re-vegetate exposed soil.

2.3.3.3 Thinning in Old Growth for Improved Tree Skiing

In old-growth stands (see **Figure 2-1** and **2-2** for the location of old-growth stands) thinning would concentrate on clearing only enough smaller trees (<7 inches in diameter) and large shrubs to reduce safety hazards and allow skiing. This thinning would cover no more than 75% of the area in old growth designated for thinning. No old-growth trees would be removed. Old growth trees in this forest type are defined as over 21 inches in diameter (Green et al. 1992). Standing snags (large dead trees) would be left unless determined to be a safety hazard. Woody debris would be left on at least 90% of the area and removed only where necessary to eliminate safety hazards. Harvest and fuel reduction techniques would be similar to those described in **Section 2.3.3.1**. Little soil disturbance would occur and re-seeding is not likely to be needed unless native plants do not immediately re-vegetate exposed soil.

Under Alternative C, a single ski run is proposed in old growth forest instead of the multiple runs proposed in Alternative B (see **Figures 2-1** and **2-2**). A 150-foot wide strip along each side of this single run would be thinned in a manner similar to that described in **Section 2.3.3.2**. This thinning would cover approximately 11 acres and no old growth trees would be removed.

2.3.3.4 Grading Ski Runs

Grading would occur on the cleared runs discussed previously, where the existing topography does not provide safe skiing or safe transitions between runs. Grading would first remove and stockpile the topsoil layer and low vegetation remaining after clearing. The topography would

then be smoothed and the stockpiled topsoil would be re-spread. These sites would also be seeded to accelerate low vegetation recovery following clearing. Grading for ski runs would only occur in stream buffers (RHCAs) where there is no alternative. Grading cannot always be avoided in stream buffers since ski runs must inevitably cross streams. Where grading is within stream buffers (RHCAs), additional erosion control measures (Best Management Practices or BMPs) would be used to minimize sediment impacts resulting from erosion on graded areas. Examples of these BMPs include water bars, silt fences, erosion control fabric and hydro-mulching. Final approval of BMPs would be made by the Washington Department of Ecology when issuing a National Pollution Discharge Elimination System (NPDES) storm water discharge plan and permit for construction activities (see **Section 2.5 Permits Required**).

2.3.3.5 Installation of Underground Utilities

Electrical lines, water pipelines, and small-diameter wastewater pipelines would be installed underground. On flat ground a backhoe or excavator would be used to build the trench. On steeper ground a cable plow would be used to install the line. Small, discontinuous areas of bare soil would be exposed during this process, these sites would be seeded to accelerate vegetation recovery following clearing. Utilities must inevitably cross streams and the potential impacts have been minimized by crossing at right angles to affect the least area and by incorporating Best Management Practices. Where utility trenching is required in RHCAs, short-term mitigation would include water bars, silt fences, erosion control fabric or similar means to prevent runoff and sediment from entering streams. Long-term mitigation would include revegetation of exposed soil.

2.3.3.6 Installation and Replacement of Culverts

Culverts would be installed or extended to provide ski run creek crossings or to widen existing crossings where safety issues exist. Each crossing would require disturbing (grading) an area of approximately 2,500 square feet adjacent to the stream. Water bars, silt fences, erosion control fabric or other techniques would be used to divert runoff and sediment away from streams. All exposed soil would be revegetated. Maintaining low gradients in culverts would control water velocities and ends of culverts would not be perched above the level of the stream, blocking passage for aquatic organisms. All proposed culvert installations must also be reviewed by the Washington Department of Fish and Wildlife for a Hydraulic Permit as part of the Joint Aquatic Resources Permit Application (JARPA) permitting process (see **Section 2.5** of this FEIS).

2.3.3.7 Nordic Ski Trail Construction

The Nordic trails would range in width from about 25 feet to about 50 feet. The 50-foot width would allow multiple tracks to be set including a skating track. In Alternative B the Nordic trails would be about 50-feet wide except at stream crossings. In response to comments, Alternative C was modified to reduce the width of the trail farther from the Nordic Center. The trails would generally be 50-feet wide in Section 6, and about 25-feet wide elsewhere.

Nordic ski trail construction would include removing all trees and tall shrubs from the trail corridor. Most soil would remain covered by low shrubs, grasses, forbs and the forest litter layer of needles and other plant remains. Stumps would be cut as close to ground level as possible. Where stumps cannot be cut low enough, they would be treated either by re-cutting, by breaking down with harvest equipment or by removal by harvest equipment. Stump removal would occur only at small, disconnected sites. Non-commercial wood waste would be chipped and used for

erosion control as needed on steeper slopes. In other areas, wood waste would be piled and burned according to Forest Service standards and State air quality controls.

Timber harvest would be conducted using wheeled and tracked equipment (including forwarders) on the gentler slopes and cable machines or helicopters on the steeper slopes. Small, discontinuous areas of bare soil would be exposed during tree removal. These bare soil sites would be seeded to accelerate vegetation recovery following clearing.

On some steeper slopes, and in areas where the existing topography is unsuited to trail construction, cut and fill construction would be required, similar to roads. Grading would be necessary to allow grooming machine access and periodic vehicle maintenance during snow-free periods. Following revegetation, the only exposed soil during summer months would be on two tracks used by pickup-type maintenance vehicles, hikers, mountain bikers and horses.

In Riparian Habitat Conservation Areas (RHCAs), the Nordic trails would narrow to 25-feet to minimize impacts to streams. Stream crossings would be made with either a culvert or an armored swale. Water bars, silt fences, erosion control fabric or other techniques would be used to divert runoff and sediment away from streams. Most exposed soil would be completely revegetated with low shrubs, grasses and forbs. Culvert installation is described in **Section 2.3.3.6**. Armored swales[3] would include limited grading of stream-crossing approaches to divert runoff and transition through the crossing area. Streambed armoring would be used to provide a stable channel at the crossing. Armored swales may be used where appropriate based on further review by Forest and Washington Department of Fish and Wildlife personnel. Mitigation similar to that used for culvert installations would be applied.

2.3.3.8 Buildings and Parking Areas

Buildings and parking areas would be constructed using standard construction techniques. The final building and parking area design would be approved by the Forest Service as part of the permit administration process. Site specific erosion control plans, storm water plans, noxious weed prevention plans, and revegetation plans would be prepared and approved (see mitigation in **Section 2.3.8**). All applicable permits would be obtained, including a National Pollution Discharge Elimination System (NPDES) permit.

New parking areas would be graded to near level and covered with gravel or crushed rock to minimize erosion. Drainage from the parking lot would be routed to vegetated areas to prevent runoff from reaching streams. Parking lot expansion and other construction activities would also require an NPDES storm water discharge plan and permit administered by the Washington Department of Ecology.

2.3.4 Alternative A - The No Action Alternative

Under the No Action Alternative, 49 Degrees North would continue to operate under its existing 1977 Master Plan, which does not reflect the objectives of the current owner. The Master Development Plan adopted would not include any changes, expansions, or additions at the resort. The No Action Alternative would maintain existing recreation opportunities and other conditions. The current conditions are illustrated in **Figures 1-2** and **1-3.** The principle

[3] An armored swale is a type of low water crossing used on very small intermittent streams that do not have water more than 1 or 2 weeks each year.

components of each alternative are compared in **Table 2-5.** The main features of the existing ski area are discussed below and are numbered for easy comparison to the Action Alternatives described later in this chapter.

2.3.4.1 SKI LIFTS

The No Action Alternative would retain the existing four chairlifts and one surface lift, which have a Comfortable Carrying Capacity of approximately 2,000 skiers per hour. No lift access would be provided to the Nelson Creek Drainage (East Basin) as proposed under Alternatives B and C.

2.3.4.2 SKI TERRAIN

The No Action Alternative would retain the existing 540 acres of alpine skiing (340 acres cleared runs and 200 acres gladed skiing). The Comfortable Carrying Capacity of the ski runs would continue to exceed the lift capacity. No cutting for ski runs would occur in old growth forests or Riparian Habitat Conservation Areas (RHCAs).

2.3.4.3 Support Facilities

The No Action Alternative retains the existing support facilities. No Main Lodge expansion, maintenance shop construction or other infrastructure improvements would occur.

Main Lodge Area
The No Action Alternative retains the existing Main Lodge at its current size of 21,000 square feet. The current Main Lodge has a Comfortable Carrying Capacity of 1,800 skiers, which is less than that of the existing ski terrain, ski lifts, water and wastewater systems (**Table 2-4**).

Mid-Mountain Lodge in the Nelson Creek Drainage (East Basin)
Alternative A does not include the Mid-Mountain Lodge. As currently configured, the Lodge relies on power and water which crosses National Forest System lands. The effects described in Chapter 3 do not include construction of this Lodge. However, the Mid-Mountain Lodge is located on private land in Section 7. With a different configuration (no water or power from NFS lands) this structure or something similar could be built without Forest Service permission.

Table 2-5: Principle Components of the Alternatives

Proposed Ski Area Modifications	Alternative A (Existing Condition)	Alternative B	Alternative C
Special Use Permit Area Size	900 acres	2,100 acres	2,100 acres
Ski Lifts			
Number of lifts	5	6	6
Comfortable Carrying Capacity (skiers/hr)	2,000	4,000	4,000
Ski Terrain			
Cleared ski runs			
Existing acreage	340 acres	340 acres	340 acres
Acreage of proposed new runs	0 acres	310 acres	230 acres
Total acres of cleared ski runs	340 acres	650 acres	570 acres
Gladed skiing areas (tree skiing)			
Existing acreage of gladed skiing	200 acres	200 acres	200 acres
Acreage of proposed new gladed areas	0 acres	270 acres	310 acres
Total acres of gladed ski areas	200 acres	470 acres	510 acres

Proposed Ski Area Modifications	Alternative A (Existing Condition)	Alternative B	Alternative C
Total acreage in ski runs, both cleared and gladed	540 acres	1,120 acres	1,080 acres
Acreage of ski runs that would require grading	0 acres	100 acres	100 acres
Other Recreation Facilities			
Nordic Facilities			
Miles of Nordic trails	12 miles[4]	20 miles	17 miles
Nordic Center	No	Yes	Yes
Ice Rink	No	Yes	Yes
Support Facilities			
Main Lodge area			
Size of the main lodge	21,000 sq. ft.	57,000 sq. ft.	57,000 sq. ft.
Acres of parking	11 acres	15 acres	15 acres
Mid-Mountain Lodge	No[5]	Yes	Yes
Wastewater treatment system	1 acre	4 acres	4 acres
Water pipelines	10,000 feet	25,000 feet	25,000 feet
Electrical distribution lines	5,000 feet	16,000 feet	16,000 feet

Maintenance Building/Ski Patrol Conversion
The existing maintenance shop building would be retained under the No Action Alternative. The concerns over runoff into Little Calispell Creek from this building area would not be addressed.

Fuel Station
The existing fuel station would be maintained in its present location adjacent to Little Calispell Creek under the No Action Alternative. Concerns over low level contamination of the creek from runoff would persist. The potential of a larger spill event would continue to exist.

Roads
The Flowery Trail Road is being reconstructed. This reconstruction includes a new entrance for the Resort, and a new alignment for the road from the main parking area to the Main Lodge. This new road and alignment are being constructed, and would occur under all alternatives. The new alignment adjacent to the ski area is illustrated on **Figures 2-3** and **2-4**.

Under the No Action Alternative, one mile of Forest Service Road 4300474 would not be transferred to Stevens County. This road segment begins at Flowery Trail Road and extends south to the private land in Section 7.

Parking
No new parking areas would be provided by the Chewelah Basin Ski Corporation under the No Action Alternative. Some additional parking is being added as part of the Flowery Trail Road reconstruction project. No new RV electrical hookups would be added.

Water Supply
The existing water system would be maintained under the No Action Alternative and would continue to supply adequate water for current use levels but not for significant increases in use.

Wastewater Treatment Systems
The existing wastewater system would be maintained under the No Action Alternative and would continue to provide adequate wastewater treatment for current use levels but not for significant increases in use.

[4] The area currently has 12 miles of Nordic trail on the Chewelah Mountain Trail system.
[5] The proposed mid-mountain lodge is located on private land. A similar lodge, without power or water from NFS lands, could be constructed without Forest Service permission.

Energy Supply
Under the No Action Alternative, no new underground power lines would be installed. The existing 5,000 feet of underground line would be maintained.

2.3.4.4 Other Recreational Opportunities

No additional recreational opportunities would be developed under the No Action Alternative. Other recreational components proposed under Alternatives B and C would not be constructed including Nordic trails, tent camping area, additional RV camping, a Nordic Center, an ice-skating rink and summer use on the proposed Nordic trail by hikers, mountain bikes and horses.

Nordic Ski Trails and Nordic Center
The No Action Alternative would maintain the existing 12 miles of Nordic trails in the area. All of Forest Road 4300474 would remain closed to motorized use in the winter and continue to be used by Nordic skiers. No Nordic Center, ice rink or additional trails would be constructed.

Trail from the Flowery Trail Community Subdivision
There is an existing old primitive road on State and NFS lands that extends from near the resort base to the Flowery Trail Community, passing near Chewelah Peak Learning Center. Historically people have used this trail for hiking, snow-shoeing, Nordic skiing, and snowmobiling. Under the No Action Alternative, use of this primitive road would continue until and unless halted by other administrative action. No bridge or culvert would be installed to facilitate this use.

Summer Trail System Use
No new trail construction would occur under the No Action Alternative and current uses would continue on the existing 12 miles of trails.

2.3.3.5 Reclamation in Little Calispell Creek RHCA

No reclamation of the Little Calispell Creek Riparian Habitat Conservation Area would occur under the No Action Alternative. Current concerns over potential water quality impacts and RHCA impacts along Little Calispell Creek would continue. State and Federal authorities may require changes at some time in the future. Current concerns within the RHCA include the maintenance shop and related activities, which may result in runoff reaching the creek. Equipment leaks and fuel spills may contribute petroleum, antifreeze and other contaminants. Bare soil with high traffic volumes may produce sediment. The surface topography currently leads existing runoff into the creek with very little diversion to vegetated areas away from the creek. Snow from this site is disposed of near the creek.

2.3.5 Alternative B – The Action Originally Proposed by the Applicant

Alternative B is the Master Development Plan proposed by the applicant in 2000. It is also the alternative reviewed by the public during scoping. The expansion activities that would occur under Alternative B are illustrated in **Figures 2-1** and **2-3.** A list of the principle components is provided in **Table 2-5.** Detailed descriptions of all activities resulting from Alternative B are presented below.

2.3.5.1 SKI LIFTS

Alternative B would build one new chairlift in the East Basin (see **Section 2.3.2.1**). This chairlift would increase the overall lift CCC from approximately 2,000 to 4,000 skiers.

The area below the lift would be cleared as described in **Section 2.3.3.1**. Chairlift towers would be transported to each tower site using logging equipment (forwarders, helicopters, cable machines, tractors or skidders). Some tower foundations close to existing roads may be poured using concrete pump trucks. Other concrete foundations would be poured using logging equipment. Roads would not be constructed to each tower location.

2.3.5.2 SKI TERRAIN

Cleared Runs
Alternative B would increase the area of cleared ski runs from about 340 to 650 acres, most of which would be on NFS lands. About 310 acres of cleared runs would be developed; 60 acres would be in old-growth forest. Clearing for runs is described in **Section 2.3.3.1**.

Of the cleared runs, about 100 acres would be graded as described in **Section 2.3.3.4** to remove hazards and make a safe transition between runs. No grading would occur in old-growth forests.

Two existing culverts on existing cleared runs would be replaced and extended—one on Little Calispell Creek and one on Tenmile Creek. Three new culverts would need to be installed on the proposed runs – two on Tenmile Creek (West Basin), and one on an unnamed intermittent stream west of Little Calispell Creek (Lower Silver Ridge). Culvert installation and replacement is described in **Section 2.3.3.6**. The location of these culverts is shown in **Figure 2-1**. Soil exposed during run construction would be protected from erosion and revegetated.

Figure 2-1 – Alternative B

Figure 2-2 – Alternative C

Figure 2-3 - Base Area Improvements – Alt B

Figure 2-4 - Base Area Improvements – Alt C

Gladed Skiing Areas
Alternative B would increase gladed skiing from 200 acres to about 470 acres. Standard thinning, as described in **Section 2.3.3.2**, would occur on about 230 acres. A lighter thinning (**Section 2.3.2.3**) would occur on an additional 40 acres of old-growth forest.

2.3.5.3 Support Facilities

Alternative B would --
1. Expand the Main Lodge;
2. Construct a new Mid-Mountain Lodge in the Nelson Creek Drainage;
3. Construct a new maintenance shop, and change the use of the existing maintenance shop to ski patrol activities;
4. Move the fuel station;
5. Allow about 1 mile of a Forest Road 4300474 to become a County Road;
6. Construct about 4 acres of new parking;
7. Construct a new water tank and water supply lines;
8. Construct a new waste water treatment facility; and
9. Install additional underground electrical power lines.

These actions do not vary between alternatives B and C, and are described in **Section 2.3.2.3.** Also see **Section 2.3.3.5** and **2.3.3.8** for a description of the construction techniques associated with these projects.

Figures 2-1 and **2-3** show the proposed actions.

2.3.5.4 Other Recreational Opportunities

Other recreational components proposed for expansion under Alternative B includes Nordic ski trails, a new Nordic Center, a tent camping area, RV parking, an ice-skating rink and summer use of the proposed Nordic trail by hikers, mountain bikes and horses.

Nordic Ski Trails and Nordic Center
Alternative B would construct 10 miles of new Nordic ski trails and a Nordic Center (**Figure 2-1**). About 2 miles of the Chewelah Mountain Trail system (part of Forest Road 4300474) would convert to a county access road and would no longer be available for Nordic skiing. The remainder of the Chewelah Mountain trail system (about 10 miles) would remain.

The new trails would be cleared of existing trees and tall shrubs as discussed in **Section 2.3.3.7.** Trails would cross perennial and intermittent streams requiring the culverts shown in **Figure 2-1**. Alternative B would require 9 new stream crossings on the proposed Nordic trails. The width of tree clearing would be reduced to 25 feet in RHCAs. A Nordic Center and ice rink would be constructed including restrooms, lockers and food service.

Flowery Trail Community Trail
Alternative B would allow winter Nordic skiing and snowmobiling, as well as summer hiking, biking and horseback riding on an existing primitive road from the base area to the Flowery Trail Community subdivision. This road also passes near the Chewelah Peak Learning Center. Alternative B requires a culvert or bridge in order for the trail to cross

Summer Trail System Use
Alternative B would include summer use on the proposed new Nordic trails including hiking, mountain biking and horseback riding. Nordic trails would be used for periodic vehicle access for maintenance during snow-free periods.

2.3.5.5 Reclamation in Little Calispell Creek RHCA

Alternative B would remove the most noxious potential threats to water quality in Little Calispell Creek, but would not remove as many existing structures as Alternative C. Alternative B would move the maintenance shop functions to a new shop located at the east side of the main parking area. The building would remain for the Ski Patrol. Removing the maintenance function would reduce the potential for petrochemicals or other chemicals associated with vehicle maintenance from entering the nearby stream. Ski Patrol functions would provide little risk of water pollution. The fuel station would also be removed to the new maintenance shop area, reducing the risk of a spill into the stream. The chlorinator would be moved into the Main Lodge, also reducing the risk of a spill into the stream. These changes would reduce the potential for sediment and chemicals from reaching Little Calispell Creek.

No specific reclamation would be done along the creek to restore riparian vegetation.

2.3.6 Alternative C – The Agency Preferred Alternative

Alternative C, the Agency Preferred Alternative, was developed during preparation of the EIS and was based on comments from the public, other agencies and the interdisciplinary team. The expansion activities under Alternative C are illustrated in **Figures 2-2** and **2-4.** A list of the principle components is provided in **Table 2-5.**

Alternative C is similar to B in many ways including the Special Use Permit area, new ski lift, lodge, parking, ice rink, Comfortable Carrying Capacity, water, wastewater and buried utilities. It would have slightly fewer acres of new ski runs, tree skiing and Nordic trails. Alternative C would have fewer acres of cleared ski runs in old growth forest (5 acres instead of 60 acres) but more thinning in old growth to improve tree skiing (100 acres instead of 40 acres). Impacts to the Riparian Habitat Conservation Areas (stream buffers) would be reduced under Alternative C and a portion of the Little Calispell Creek RHCA would be reclaimed to reduce existing impacts. The features of Alternative C are described below.

2.3.6.1 Ski Lifts

Alternative C includes the same new chairlift in the East Basin as Alternative B (see **Section 2.3.2.1**).

The area below the lift would be cleared as described **in Section 2.3.3.1**. Chairlift towers would be transported to each tower site using logging equipment (forwarders, helicopters, cable machines, tractors or skidders). Some tower foundations close to existing roads may be poured using concrete pump trucks. Other concrete foundations would be poured using logging equipment. Roads would not be constructed to each tower location.

2.3.6.2 Ski Terrain

Cleared Runs
Alternative C would increase the area of cleared ski runs from about 340 to 570 acres, most of which would be on NFS lands. About 230 acres of cleared runs would be developed; 5 of these acres would be in old-growth forest. Clearing for runs is described in **Section 2.3.3.1**.

Of the cleared runs, about 100 acres would be graded as described in **Section 2.3.3.4** to remove hazards and make a safe transition between runs. No grading would occur in old-growth forests.

Two existing culverts on existing cleared runs would be replaced and extended—one on Little Calispell Creek and one on Tenmile Creek. Three new culverts would need to be installed on the proposed runs – two on Tenmile Creek (West Basin), and one on an unnamed intermittent stream west of Little Calispell Creek (Lower Silver Ridge). Culvert installation and replacement is described in **Section 2.3.3.6**. The location of these culverts is shown in **Figure 2-2**. Soil exposed during run construction would be protected from erosion and revegetated.

Gladed Skiing Areas
Alternative C would increase gladed skiing from 200 acres to about 510 acres. Standard thinning, as described in **Section 2.3.3.2**, would occur on about 210 acres. A lighter thinning, as described in **Section 2.3.3.3**, would occur on an additional 100 acres of old-growth forest, but no old-growth trees would be removed.

2.3.6.3 Support Facilities

Alternative C would --
1. Expand the Main Lodge;
2. Construct a new Mid-Mountain Lodge in the Nelson Creek Drainage;
3. Construct a new maintenance shop, and change the use of the existing maintenance shop to ski patrol activities;
4. Move the fuel station;
5. Allow about 1 mile of National Forest road 4300474 to become a County Road;
6. Construct about 4 acres of new parking;
7. Construct a new water tank and water supply lines;
8. Construct a new waste water treatment facility; and
9. Install additional underground electrical power lines.

These actions do not vary between alternatives B and C, and are described in **Section 2.3.2.3.** Also see **Section 2.3.3.5** and **2.3.3.8** for a description of the construction techniques associated with these projects.

Figure 2-2 and **Figure 2-4** show the proposed actions.

2.3.6.4 Other Recreational Opportunities

Other recreational components proposed under Alternative C include Nordic trails, a new Nordic Center, a tent camping area, additional RV Parking, an ice-skating rink and summer use of the proposed Nordic trail by hikers, mountain bikes and horses.

Nordic Trails and Nordic Center
Alternative C would construct 7 miles of new Nordic ski trails and a Nordic Center, shown in **Figure 2-2**. About 2 miles of the Chewelah Mountain Trail system (part of Forest Road 4300474) would convert to a county access road and would no longer be available for Nordic skiing. The remainder of the Chewelah Mountain trail system (10 miles) would remain.

The new trails would be cleared of existing trees and tall shrubs. Trail construction is discussed in **Section 2.3.3.7**. For about 2.5 miles of trail nearest the Nordic Center, the clearing would be about 50 feet wide to allow multiple tracks including a 'skating' track. The clearing for the remainder of the new trail would be about 25 feet wide, to minimize adverse effects. Trails would cross perennial and intermittent streams requiring the culverts shown in **Figure 2-2**. Alternative C would require 6 new stream crossings on the proposed Nordic trail. The width of tree clearing would be reduced to 25 feet in RHCAs. A Nordic Center and ice rink would be constructed with both alternatives including restrooms, lockers and food service.

Flowery Trail Community Trail
Alternative C would allow winter Nordic skiing and snowmobiling as well as summer hiking, biking and horseback riding on an existing primitive road from the base area to the Flowery Trail Community subdivision.

Summer Trail System Use
Alternative C would allow summer use on the proposed Nordic trails including hiking, mountain biking and horseback riding. Nordic trails would be used for periodic vehicle access for maintenance during snow-free periods.

2.3.6.5 Reclamation in Little Calispell Creek RHCA

Alternative C would remove most of the buildings within the Riparian Habitat Conservation Area of Little Calispell Creek. Like Alternative B, Alternative C would move the maintenance shop functions to a new building located at the east side of the main parking area. The current maintenance shop building would remain for the Ski Patrol. Removing the maintenance function would reduce the potential for petrochemicals or other chemicals associated with vehicle maintenance from entering the nearby stream. Ski Patrol functions would provide little risk of water pollution. The fuel station would also be removed to the new maintenance shop area, reducing the risk of a spill into the stream. The chlorinator would be moved into the Main Lodge, also reducing the risk of a spill into the stream.

In addition to the activities proposed in Alternative B, Alternative C removes the race building, the Special Ops building, and the Shreave Room from within the RHCA. These changes would reduce traffic adjacent to the creek, thereby reducing the potential for sediment and chemicals from reaching Little Calispell Creek.

Alternative C would also restore vegetation on about 2 acres within the RHCA adjacent to the Main Lodge (**Figure 2-4**). Components of this project would include:

- Contour the existing topography to divert runoff from directly entering the creek.
- Create a fenced corridor along the creek and revegetate with woody riparian species (approximately 1 acre).
- Landscape and revegetate an additional 1-acre area in the vicinity of the removed buildings, fuel station and former maintenance shop.

2.3.7 Implementation Schedule

The following table illustrates the proposed schedule for implementing project components of the proposed expansion. Most components would be completed over a period of several years. The precise dates may change due to skier demand, economics and other concerns.

Table 2-6: Estimated Implementation Schedule

Project Component	Years After The Decision is Signed
New Ski Terrain	Year 1-7
New Chairlift	Year 1-2
New Mid-Mountain Lodge	Year 4
New Parking	Year 1-6
Main Lodge expansions	Year 2-7
New Maintenance shop	Year 3
Little Calispell Creek Rehabilitation	Year 1-7
New Nordic trails	Year 2-4
New Nordic Center and Ice rink	Year 3-4
New Electrical Lines	Year 1-7
Water System Improvements	Year 1-10
New Wastewater Treatment System for the Main Lodge	Year 2-3

New Ski Terrain
The development of new ski terrain would be a continuing project over the next seven years. The East Basin terrain would be developed in conjunction with construction of the East Basin lift, in the first 1 to 2 years after the decision. The Lower Silver Ridge and the West Basin terrain would be developed later. Glading or thinning for tree skiing would take place in the same geographic areas as new cleared ski runs when possible.

New Chairlift
The East Basin would be the only new chair and is considered a primary objective. However, it would be necessary to create new ski cleared runs and glading before installing the new lift. The new lift would be installed in year 1 or 2 after decision.

New Mid-Mountain Lodge
Lodge construction would be on an as-need basis. The construction would take place in phases over the course of approximately four years from the decision.

New Parking
With the Flowery Trail Road Reconstruction, the amount of parking has significantly increased. It is expected that one parking area would be developed in the first 1-2 years after the decision, and the parking along the access road would be developed as needed in 4 to 6 years.

Main Lodge Expansions
With the completion of the new lift in the East Basin, the first 6,000-sq ft addition would be necessary at the Main Lodge (year 1-3 after the decision). The completion of the other lodge additions would take 2-7 years after the first addition.

New Maintenance Shop
After the lift and first lodge addition have been completed, it would be necessary to increase the size of this facility to service the other additional facilities. Project completion would take place approximately 3 years after the decision.

Little Calispell Creek Restoration
These projects would be completed over several years as the current facilities that are adjacent to the creek are removed and replaced – the maintenance shop, the chlorinator, and the current access road. Restoration should begin after the decision is signed.

New Nordic Trails
Clearing for the Nordic trails would begin in the first 1-2 years after the decision. The trail system would be largely in-place by year 4.

New Nordic Center and Ice Rink
The Nordic Center would be constructed after the Nordic trails are mostly completed, 3 to 4 years after the decision. The Ice Rink would be completed last.

New Electrical Lines
This would be an ongoing project. Electrical lines would be constructed in conjunction with increased uses (East Basin lift in year 1 or 2, mid-mountain lodge in year 4, etc). Some new electrical line could be put in every year.

Water System Improvements
This is an ongoing project (repair and maintenance) and the new system would grow as facilities are expanded over the next 10 years. The chlorinator would be moved into the Main Lodge as soon as possible.

New Wastewater Treatment System for the Main Lodge
The waste water treatment facility would be constructed with lodge expansions. At all times the waste water treatment facility capacity would meet or exceed the Comfortable Carrying Capacity for the lodge.

2.3.8 Mitigation

Mitigation to reduce potential impacts from Action Alternatives would be achieved by:

- Applying the project-specific mitigation measures for all Action Alternatives;
- Implementing Best Management Practices (BMPs) of the Colville National Forest and Washington Department of Ecology;
- Removing some existing impacts along Little Calispell Creek under Alternative C.

Many of these mitigation measures could be applied to connected activities on private lands.

2.3.8.1 Project-Specific Mitigation Measures

The following project-specific mitigation measures would be applied for all Action Alternatives:

- If any TES species (animal, plant or fish) is found in the project area while project activities are occurring, a biologist, botanist, or fish biologist would be consulted as to measures required to protect the species and its essential habitat.
- Weed prevention would be conducted using guidelines and priorities established by the Environmental Assessment for Integrated Noxious Weed Treatment, Colville National Forest (USDA Forest Service 1998).
- A contract provision to require cleaning of all off-road equipment prior to entry onto National Forest lands would be included in any contract for any potential soil disturbing

work. Wording would be consistent with timber sale contract provision CT6.343 - Noxious Weed Control.

- Seeding of areas of disturbed soil would be done as directed by the Colville National Forest Weed Prevention Guidelines (USDA Forest Service 1999a), the Seeding and Planting Guide for the Colville National Forest (USDA Forest Service 1999b), and the USDA Forest Service Guide to Noxious Weed Prevention (USDA Forest Service, 2001). All areas of ground disturbance would be seeded with a weed-free native and desired non-native seed mix and fertilized as necessary. This helps ensure establishment of desirable vegetation and has proven effective in reducing or preventing establishment of noxious weeds.
- All known heritage resource sites would be protected or avoided by project activities.
- Appropriate heritage protection provisions would be inserted into any resulting contract or agreement. Such provisions would specify that, in the event of discovery of any heritage resources during implementation, the heritage resources are to be protected from further disturbance. Project work would cease in the immediate vicinity of any such heritage site, and the Forest Archaeologist would be notified as soon as possible.
- Prescribed burning activities would comply with the Washington State Smoke Management Plan.
- Snow plowed from parking areas and roads has to be placed somewhere until it eventually melts away. This is called 'snow disposal'. In the past, snow was plowed into areas in or adjacent to Little Calispell Creek. Because of concerns about petrochemical pollution, the Resort has changed its practices, pushing snow away from the stream. In general, snow will be plowed to areas outside the Riparian Habitat Conservation Areas (RHCAs), and into areas where snowmelt is unlikely to run into streams. Any snow disposal that occurs within RHCAs must be approved by the Forest Fish Biologist to ensure petrochemicals do not pollute streams. This is similar to BMP PR-21 – Snow Removal Controls to Avoid Resource Damage.
- Woody debris removed for construction of Nordic trails in the pine marten core area (part of Section 8) would be placed adjacent to the trails to provide cover for pine marten and their prey. Large logs, stumps and other woody material would be piled so as to form openings in the piles free of soil, rocks and other debris.

2.3.8.2 Colville Forest Best Management Practices (BMP's)

Best Management Practices are the primary mechanism to enable the achievement of water quality standards. BMPs for activities common to NFS lands have been selected from those used by the Colville National Forest. BMPs related to construction activities have been selected from those used by the Washington Department of Ecology.

The U.S. Forest Service, Pacific Northwest Region (R6) has developed a set of general BMPs, described in General Water Quality Best Management Practices (USDA Forest Service 1988b). This publication describes the legal background of BMPs, including the role of BMPs in meeting the Clean Water Act, and the 1978 Memorandum of Understanding between the Forest Service and Washington State Department of Ecology regarding the use of BMPs on Federal lands.

The selection and design of BMPs are an integral part of the Colville National Forest Land and Resource Management Plan Standards and Guidelines for Soil, Water, and Air (Forest Plan, pages 4-50 to 4-54). The BMP process is described in the Forest Plan, page 4-51 item 3; and in the Forest Plan FEIS Appendix G. Appropriate BMPs are selected for each project by an interdisciplinary team. BMP selection and design are dictated by site-specific water quality

objectives, soils, topography, geology, vegetation, climate, economics, institutional constraints, etc. These BMPs were selected to protect beneficial uses, and meet other resource needs.

Many of the BMPs are included as Mitigation Measures, but some are incorporated as standard practice into project implementation, and some are a description of the planning process used (and therefore are not included as mitigation). Many BMPs are standard timber sale contract provisions. The complete text of each Best Management Practice is located in the project file (USDA Forest Service 2000e). The forest BMPs selected for use in this project are listed below.

BMPs for Vegetation Removal

PT-1 Timber Sale Planning Process
PT-3 Use of Erosion Potential Assessment for Timber Harvest Unit Design
PT-5 Limiting the Operating Period of Timber Sale Activities
PT-6 Protection of Unstable Lands
PT-8 Streamcourse Protection
PT-9 Determining Tractor Loggable Ground
PT-11 Tractor Skid Trail Location and Design
PT-13 Erosion Prevention and Control Measures During Timber Sale Operations
PT-14 Revegetation of Areas Disturbed by Harvest Activities
PT-15 Log Landing Erosion Prevention and Control
PT-16 Erosion Control on Skid Trails
PT-18 Erosion Control Structure Maintenance
PT-19 Acceptance of Timber Sale Erosion Control Measures Before Sale Closure

BMPs for Roads and Trails

PR-1 General guidelines for the location and design of roads
PR-2 Erosion Control Plan
PR-3 Timing of Construction Activities
PR-4 Location, Design and Construction of Stable Road Cut and Fill Slopes
PR-5 Road Slope and Waste Area Stabilization (Preventive)
PR-6 Dispersion of Subsurface Drainage Associated with Roads
PR-7 Control of Surface Roadway Drainage
PR-8 Constraints Related to Pioneer Road Construction
PR-9 Timely Erosion Control Measures on Incomplete Roads and Stream Crossing Projects
PR-10 Construction of Stable Embankments (Fills)
PR-12 Control of Construction in Riparian Habitat Conservation Areas (RHCAs)
PR-13 Diversion of Flows Around Construction Sites
PR-14 Bridge and Culvert Installation and Protection of Fisheries
PR-16 Specifying Riprap Composition
PR-18 Maintenance of Roads
PR-20 Traffic Control During Wet Periods
PR-21 Snow Removal Controls to Avoid Resource Damage
PR-23 Obliteration of Temporary Roads and Landings

BMPs for Recreation

PREC-1 Provide Safe Drinking Water Supplies
PREC-2 Documentation of Potable Water Quality Data
PREC-3 Management of Sanitation Facilities
PREC-4 Control of Refuse Disposal
PREC-6 Management of Off-Road Vehicle (ORV) Use
PREC-8 Protection of Water Quality Within Developed and Dispersed Recreation Areas

BMPs for Vegetative Manipulation

PVM-1 Slope Limitations for Tractor Operation

PVM-3 Revegetation of Surface Disturbed Areas
PVM-4 Soil Moisture Limitations for Tractor Operation

BMPs for Watershed Management
PW-1 Watershed Restoration
PW-3 Protection of Wetlands
PW-4 Oil and Hazardous Substance Spill Contingency Plan and Spill Prevention Control and Countermeasure (SPCC) Plan
PW-5 Cumulative Watershed Effects
PW-6 Control of Activities Under Special Use Permit
PW-7 Water Quality Monitoring
PW-8 Management by Closure to Use (Seasonal, Temporary, and Permanent)
PW-9 Surface Erosion Control at Facility Sites

2.3.8.3 Washington State BMPs

The BMP process has been certified by the State of Washington as a valid method for protecting water quality within the State, thus meeting the requirements of the Clean Water Act. Through implementation and monitoring of the BMPs, compliance with the Clean Water Act would be achieved and State water quality goals and standards would be met. Washington State BMPs are likely to be required as part of a National Pollution Discharge Elimination System (NPDES) permit which must be obtained from the Washington Department of Ecology before construction begins on any expansion activities (see **Section 2.5**). These BMPs would be implemented in addition to those from the Colville National Forest. Washington State BMPs applicable to this project are listed below.

Construction BMPs – Source Controls
BMP C101: Preserving Natural Vegetation
BMP C102: Buffer Zones
BMP C103: High Visibility Plastic or Metal Fence
BMP C104: Stake and Wire Fence
BMP C107: Construction Road/Parking Area Stabilization
BMP C120: Temporary and Permanent Seeding
BMP C121: Mulching
BMP C122: Nets and Blankets
BMP C125: Topsoiling
BMP C130: Surface Roughening
BMP C180: Small Project Construction Storm Water Pollution Prevention

Construction BMPs –Runoff Conveyance and Treatment
BMP C200: Interceptor Dike and Swale
BMP C202: Channel Lining
BMP C203: Water Bars
BMP C209: Outlet Protection
BMP C220: Storm Drain Inlet Protection
BMP C230: Straw Bale Barrier
BMP C231: Brush Barrier
BMP C232: Gravel Filter Berm
BMP C233: Silt Fence
BMP C234: Vegetated Strip
BMP C235: Straw Wattles
BMP C240: Sediment Trap
BMP C241: Temporary Sediment Pond
BMP C251: Construction Storm Water Filtration

2.3.9 Monitoring

The following monitoring would be conducted by the Colville National Forest (CNF) if any of the action-alternatives are implemented. This monitoring is designed to verify that the projects are implemented as designed, and are effective and efficient in meeting project and Forest Plan objectives (USDA Forest Service 1988a). The CNF has developed plans to monitor Forest Plan implementation, monitor the effectiveness of management practices implemented under the Forest Plan, and validate the assumptions and models used in planning. For activities related to this project, all alternatives would comply with specific monitoring requirements identified by the Forest Plan for the Colville National Forest.

The length of time that monitoring is needed would be determined by the results and evaluation of what is being monitored. When it is certain that regulations and standards are being met, monitoring of a particular element would cease. If monitoring evaluations show that regulations or standards are not being achieved at the desired level, management intervention would occur.

Permit Administration
The primary form of monitoring for this project is through permit administration. The Forest Service inspects the facility, and observes its operations many times each year to ensure Chewelah Basin Ski Corp. is following the terms and conditions of their permit. This administration process would be used to ensure the proposed projects are implemented as planned.

Water Quality
Visual monitoring would be used to determine if BMPs are implemented and are effective at preventing water quality impacts, especially at culvert installations and near streams. Visual monitoring would also be used to determine if activities and reclamation within Riparian Habitat Conservation Areas are implemented correctly and effectively. Visual monitoring would be used to evaluate Nordic trails for erosion or other problems.

In addition, Little Calispell Creek would be monitored for the presence of petrochemicals. The Forest is concerned that petrochemical residues are being entrained with snow when parking areas are plowed, and released into the stream during spring snowmelt. Sampling would occur twice annually in the spring[6], for at least 5 years. This monitoring would be discontinued after 5 years of continual compliance with state water standards in Little Calispell Creek. These standards can be found in WAC 173-201A-240 Toxic substances.

2.4 ALTERNATIVE COMPARISON FOR THE KEY ISSUES

This section provides a comparison of how the key issues identified in **Section 2.2.2** are affected by each Action Alternative. This section is a summary of the most important issues; more detail is provided in **Chapter 3** for each resource. Comparisons of non-key issues are provided for all resources in **Chapter 3**. **Table 2-7** illustrates the differences in the three alternatives for the key issues. The current condition (Alternative A – No Action) is listed for reference.

[6] Monitoring would probably occur in March and May.

2.4.1 Recreation Issue Differences

Both action alternatives provide a similar balance of Comfortable Carrying Capacity for recreation (**Table 2-4**). Alternative B would provide a slightly larger area of cleared downhill ski runs and gladed skiing than would Alternative C (1,120 vs. 1,080 acres). Alternative B would also provide slightly more Nordic trails than Alternative C (20 vs. 17 miles). Both Action Alternatives would provide the same other amenities -- an ice rink, Nordic Center, lodge improvements and parking area expansions.

Both Action Alternatives would allow 49 Degrees North to compete effectively in the local ski market and provide for continued increases in skier numbers. These factors should ensure the continued economic viability of the resort and its contribution to the local economy and recreation resource.

Other developed ski areas that share the 49 Degrees North market include Mount Spokane, Schweitzer Basin, Silver Mountain, and Lookout Pass. Only Lookout Pass has proposed expansion plans and these plans are currently under NEPA review. The effect of the Lookout Pass expansion on the 49 Degrees North expansion is difficult to evaluate; however, both are small ski areas that draw most of their customers from nearby markets.

The major market for Lookout Pass is Mullan to Coeur d'Alene, Idaho and this area is also experiencing significant population growth to support its expansion (Panhandle National Forest 2002). Lookout Pass also draws skiers from Montana, which is outside the 49 Degrees North market area. Due to increased skier numbers, recent population growth, and continuing population growth estimates in both market areas, it is likely that skier demand would support both expansion projects.

The Chewelah Learning Center and the proposed 49 Degrees North expansion would increase the recreation demand for hiking, skating, skiing, snowshoeing, and unstructured outdoor recreational opportunities. The cumulative effect of the Learning Center and expansion of ski area would be more people recreating than with either project separately. The increase in number of people recreating would not affect the quality of recreation, as there would be sufficient capacity to accommodate demands from both the ski area and Learning Center.

New homes on state lease lands of the Flowery Trail Community subdivision and development within private land on Section 7 of the Nelson Creek drainage would also increase numbers of people seeking recreational opportunities. The Chewelah Basin Ski Corporation, which owns the private land in Section 7, has indicated a long-term desire to develop their land to include residential housing units, a hotel or hostel, and a village commercial area. The recreation demand of this potential development cannot be quantified because the actual extent of new construction is not known. However, development of this private land is more attractive if a new ski lift services the private lands and maintenance of the existing Forest Service road is transferred to Stevens County. Similarly, development within State lands of the Flowery Trail Community subdivision is more attractive if the ski area expands and offers more recreation opportunities, such as Nordic skiing and ice skating.

Table 2-7: Comparison of Key Issues by Alternative

Issue	Alternative A	Alternative B	Alternative C
RECREATION ISSUES			

Issue	Alternative A	Alternative B	Alternative C
Long Lift Lines			
Number of Ski Lifts	5	6	6
Ski lift Comfortable Carrying Capacity	2,000	4,000	4,000
Crowding on Ski Slopes			
Acreage of cleared ski runs	340 acres	650 acres	570 acres
Acreage of tree skiing	200 acres	470 acres	510 acres
Total acreage of ski runs and tree skiing	540 acres	1,120 acres	1,080 acres
Other Recreation Amenities Offered			
Nordic Center	No	Yes	Yes
Miles of Nordic ski trails	12 miles	20 miles	17 miles
Ice rink	No	Yes	Yes
Crowding in the Main Lodge			
Main Lodge/Visitor Services Facilities	21,000 sq ft	57,000 sq ft	57,000 sq ft
Comfortable Carrying Capacity of the lodge	1,800	4,000	4,000
Crowding in Parking Area			
Acres of parking	11	15	15
Vehicle capacity of parking areas	1,000	1,400	1,400
WILDLIFE ISSUES			
Wildlife Habitat Changes			
Acres of forest cleared for new ski runs and lifts (including old-growth)	340 acres	650 acres	570 acres
Acres of forest thinned for tree skiing (including old growth)	200 acres	470 acres	510 acres
Wildlife Habitat Changes to Old-growth Habitat			
Old Growth Forest clearing for ski runs	None	60 acres	5 acres
Thinning in Old Growth Forest (no OG trees)	None	40 acres	100 acres
Acres of forest cleared for Nordic trails in a designated pine marten management area.	0 acres	14 acres	1.5 acres
Lynx Habitat			
Lynx denning habitat (min. 10% recommended)	4,131 acres 19% of LAU	3,908 acres 18% of LAU	3,939 acres 18% of LAU
Lynx foraging habitat	17,937 acres 83% of LAU	17,516 acres 81% of LAU	17,547 acres 81% of LAU
Lynx unsuitable habitat (max. 30% recommended)	3,659 acres 17% of LAU	3,882 acres 18% of LAU	3,851 acres 18% of LAU
WATER AND FISH ISSUES			
Water Quality (sediment)			
Number of new culverts installed	0	13	10
Number of existing culverts replaced	0	3	3
Wetlands			
Area of affected waters of the US and wetlands (only effects are at culverts)	Approx. 0.1 acres	Approx. 0.2 acres	Approx. 0.2 acres
Water Quality and Fish Habitat			
New impacts within Riparian Habitat Conservation Areas (RHCAs)	None	3 acres	3 acres
Current activities within RHCAs that would be removed.	None	Vehicle maintenance[7], chlorinator and fuel station	Vehicle maintenance, chlorinator, fuel station, sheave room, race and special ops buildings
Acreage of RHCA reclaimed	0 acres	0 acres	2 acres

[7] In both alternatives the building would remain and would be converted to the ski patrol hut.

2.4.2 Wildlife Issue Differences

Alternative C would require fewer acres of new forest clearing for ski runs than Alternative B (230 vs. 310 acres) and slightly more acres of thinning to improve tree skiing (310 vs. 270 acres). Thinning, clearing, and packing the snow (especially in old-growth habitats) would have an adverse impact on wildlife habitat (see **Chapter 3** – Wildlife) and would reduce the capacity of the area to support species typically associated with forest communities in late seral stages (i.e., old growth and mature forest).

Both alternatives would reduce the capacity of the analysis area to support old-growth associated species (e.g., pine marten, barred owl and pileated woodpecker); however, Alternative B would have the greatest potential to adversely affect old-growth associated species because more acres of old growth and late seral vegetation (i.e., pine marten core area) would be affected.

Alternative C would have fewer acres of forest clearing in old growth forest than Alternative B (5 vs. 60 acres). However, Alternative C has more acres of thinning in old growth forest, to allow tree skiing, than Alternative B (100 vs. 40 acres). As a mitigation measure, the thinning prescription in old growth would leave all old growth trees, most snags, and would leave 40% of the area untouched. Woody debris would be left in place on 90% of the old growth area (see **Section 2.3.3.3**). This thinning prescription for old growth would reduce the impacts to old-growth dependent species because all large trees would be retained with little reduction in snags and down woody debris. Packing of snow by skiers in the old-growth stand could reduce the value of winter habitat for pine marten by preventing them from accessing below-snow spaces that provide shelter and harbor prey.

Alternative C would impact less acres of Pine Martin Area #62 than Alternative B (1.5 acres vs. 14 acres); however, with both alternatives more than 160 acres of the pine marten core area would remain intact. With both alternatives, the pine marten core area would not be reduced below the 160-acre minimum specified in the Forest Plan.

Alternative C would affect slightly fewer acres of lynx denning and foraging habitat than Alternative B (21,409 vs. 21,415 acres). However, the effects on all lynx habitat components are negligible under both alternatives and are within the recommended values of the Lynx Conservation Assessment and Strategy (Ruediger et al. 2000).

2.4.3 Water and Fish Resource Differences

Alternative C requires 3 fewer new culverts, which results in slightly less disturbance to streams, wetlands, and Riparian Habitat Conservation Areas (**Table 2-7**).

Both Action Alternatives would affect about 3 new acres within Riparian Habitat Conservation Areas (RHCAs).

Both Action Alternatives reduce some of the existing impacts in the RHCA. Alternatives B and C would remove the chlorinator, fuel station and vehicle maintenance from the RHCA of Little Calispell Creek. In addition, Alternative C would also remove three more small buildings located within the RHCA, and remove a portion of the existing parking area within the RHCA (adjacent to the Main Lodge). These measures would help offset existing and proposed RHCA impacts

and would help meet Riparian Management Objectives identified in INFISH and management directives in the Forest Plan.

Alternative C includes a reclamation project in the RHCA totaling about 2 acres to further offset existing and proposed RHCA impacts (see **Section 2.3.5.5**). The reclamation project in Alternative C would reshape and revegetate the area adjacent to Little Calispell Creek near the Main Lodge.

2.5 PERMITS REQUIRED

Other Federal, State, and local agencies have jurisdiction over certain aspects of the Action Alternatives. **Table 2-8** lists agencies with jurisdiction over the Action Alternatives and identifies their respective permitting responsibilities.

NPDES Permit
The Washington Department of Ecology regulates discharge of storm water into State waters. The Action Alternatives would require a NPDES storm water discharge permit (National Pollution Discharge Elimination System) since more than 1 acre would be disturbed for construction of buildings, parking, and new ski runs. The NPDES permit process is designed to prevent water quality impacts from construction sites. Applicants for an NPDES permit must submit a storm water plan identifying the project components that may generate storm water, the nature of pollutants in that storm water and BMPs that will be implemented to avoid or minimize impacts.

Table 2-8 Permits Required

Permit	Regulatory Agency
Clean Water Act; NPDES Storm Water Discharge Permit	Washington Department of Ecology (authorized for compliance review by the U.S. EPA)
Clean Water Act; 404 Permit for Disturbance to Wetlands at Stream Crossings	U.S. Army Corps of Engineers
Clean Water Act Section 401 Water Quality Certification: Required for issuance of 404 Permit	Washington Department of Ecology (authorized for compliance review by the U.S. EPA)
JARPA Permit for culvert installations	Washington Department of Fish and Wildlife
Building Permit including construction, electrical, plumbing and other components	Stevens County
Drinking Water System Construction or Modification Permit	Washington Department of Ecology
Wastewater Treatment System Permits	County Sanitarian; Washington Dept. of Ecology

The Department of Ecology has developed a storm water manual specific to eastern Washington that provides plan guidance and BMPs (Washington State Department of Ecology 2001).

Washington JARPA Permit Process and Sections 401 and 404 - Clean Water Act
Culvert installation in Washington is regulated through the Washington Joint Aquatic Resource Permit Application (JARPA) process. This application process includes the separate concerns and permit requirements of State and Federal agencies including:

- Hydraulic Project Approval – Washington Department of Fish and Wildlife,
- Shoreline Permitting – Local Government under the Shoreline Management Act (90.58 RCW),
- Floodplain Management – Local Government,

- Section 401 Water Quality Certification – Washington Department of Ecology,
- Temporary Exceedance of Water Quality Standards - Washington Department of Ecology,
- Section 404 (Wetlands and Waters of the US) – Army Corps of Engineers, and
- Section 10 (Navigable Waters of the US) – Army Corps of Engineers.

Building Permits
Building permits covering structural, electrical, plumbing and other construction items are issued by Stevens County.

Water and Wastewater System Construction Permits
The Washington Department of Ecology provides technical oversight and issues permits for water and wastewater systems. Small wastewater systems may only require review by the Stevens County Sanitarian.

Permits for Nordic Trail Development on State Lands
Alternatives B and C propose new Nordic Trails on land managed by the Washington State Department of Natural Resources (DNR). These trails would tie the ski area to the Chewelah Learning Center and to the Flowery Trail Community residential subdivision. Activities on State Lands may require additional permits from DNR.